## 7. Appendices

## Appendix A: Work Breakdown Structure

This WBS is derived from an analysis of the NASA Reference Model for an NGO

1	0	Management
1	1	Report on cost/schedule/performance
1	2	Interface with Government organizations
1	3	Manage support contracts
1	4	Manage operations contract
1	5	Select and administer resident personnel
1	6	Manage and administer a visiting scientist program
1	7	Maintains proprietary procedures
1	8	Provide liaison with commercial sector
1	9	Administer commercial ventures
2	0	Grant and Finance
2	1	Assist in the evaluation and financing of entrepreneurial ventures
2	2	Analyze and support selection of proposed experiments
2	3	Analyze and support selection of technology experiments
2	4	Issue and administer Instruments of Agreement
2	5	Definition and assignment of orbital opportunities
2	6	Manages private capital funds (Trust)
2	7	Selects ventures for funding
2	8	Finances private ventures
	_	Operations
3	0	Operations
3	1	Define orbital opportunities
		<u> </u>
3	1	Define orbital opportunities
3	1 2	Define orbital opportunities Support ISS R/T operations
3 3 3	1 2 3	Define orbital opportunities Support ISS R/T operations Perform R/T operations replanning
3 3 3	1 2 3 4	Define orbital opportunities Support ISS R/T operations Perform R/T operations replanning Provide tactical planning for operations
3 3 3 3	1 2 3 4 5	Define orbital opportunities Support ISS R/T operations Perform R/T operations replanning Provide tactical planning for operations Maintain the Mission model
3 3 3 3 3	1 2 3 4 5 6	Define orbital opportunities Support ISS R/T operations Perform R/T operations replanning Provide tactical planning for operations Maintain the Mission model Generate utilization metrics
3 3 3 3 3 3 3	1 2 3 4 5 6 7	Define orbital opportunities Support ISS R/T operations Perform R/T operations replanning Provide tactical planning for operations Maintain the Mission model Generate utilization metrics Manage operations of payload flight and ground systems
3 3 3 3 3 3 3 3	1 2 3 4 5 6 7 8	Define orbital opportunities  Support ISS R/T operations  Perform R/T operations replanning  Provide tactical planning for operations  Maintain the Mission model  Generate utilization metrics  Manage operations of payload flight and ground systems  Develop requirements for payload operator skills/expertise
3 3 3 3 3 3 3 3 3	1 2 3 4 5 6 7 8	Define orbital opportunities Support ISS R/T operations Perform R/T operations replanning Provide tactical planning for operations Maintain the Mission model Generate utilization metrics Manage operations of payload flight and ground systems Develop requirements for payload operator skills/expertise Manage payload data processing and distribution
3 3 3 3 3 3 3 3 3	1 2 3 4 5 6 7 8 9	Define orbital opportunities  Support ISS R/T operations  Perform R/T operations replanning  Provide tactical planning for operations  Maintain the Mission model  Generate utilization metrics  Manage operations of payload flight and ground systems  Develop requirements for payload operator skills/expertise  Manage payload data processing and distribution  Schedules experiments or projects
3 3 3 3 3 3 3 3 3 3	1 2 3 4 5 6 7 8 9 10	Define orbital opportunities Support ISS R/T operations Perform R/T operations replanning Provide tactical planning for operations Maintain the Mission model Generate utilization metrics Manage operations of payload flight and ground systems Develop requirements for payload operator skills/expertise Manage payload data processing and distribution Schedules experiments or projects Process data and generate data products
3 3 3 3 3 3 3 3 3 3 3 3	1 2 3 4 5 6 7 8 9 10 11	Define orbital opportunities Support ISS R/T operations Perform R/T operations replanning Provide tactical planning for operations Maintain the Mission model Generate utilization metrics Manage operations of payload flight and ground systems Develop requirements for payload operator skills/expertise Manage payload data processing and distribution Schedules experiments or projects Process data and generate data products Manage data archive
3 3 3 3 3 3 3 3 3 3 4	1 2 3 4 5 6 7 8 9 10 11 12 <b>0</b>	Define orbital opportunities  Support ISS R/T operations  Perform R/T operations replanning  Provide tactical planning for operations  Maintain the Mission model  Generate utilization metrics  Manage operations of payload flight and ground systems  Develop requirements for payload operator skills/expertise  Manage payload data processing and distribution  Schedules experiments or projects  Process data and generate data products  Manage data archive  Education
3 3 3 3 3 3 3 3 3 3 4 4	1 2 3 4 5 6 7 8 9 10 11 12 <b>0</b>	Define orbital opportunities Support ISS R/T operations Perform R/T operations replanning Provide tactical planning for operations Maintain the Mission model Generate utilization metrics Manage operations of payload flight and ground systems Develop requirements for payload operator skills/expertise Manage payload data processing and distribution Schedules experiments or projects Process data and generate data products Manage data archive  Education Communicate benefits of orb environment to public (advocacy role)
3 3 3 3 3 3 3 3 3 3 4 4	1 2 3 4 5 6 7 8 9 10 11 12 <b>0</b>	Define orbital opportunities Support ISS R/T operations Perform R/T operations replanning Provide tactical planning for operations Maintain the Mission model Generate utilization metrics Manage operations of payload flight and ground systems Develop requirements for payload operator skills/expertise Manage payload data processing and distribution Schedules experiments or projects Process data and generate data products Manage data archive Education Communicate benefits of orb environment to public (advocacy role) Interface with media

5	2	Manage design, development, test, and integration of sponsored payload elements
5	3	Provide recommendations for space and ground system enhancements, changes
5	4	Manage physical, analytical and operation integration of payloads/experiments
5	5	Oversee and approve payload integration plans and flight personnel assignments
5	6	Develop new flight assets
5	7	Maintain ISS utilization requirements
5	8	Maintain standards
6	0	IR&D
6	1	Developing the R&D program plan
6	2	Propose and perform IR&D